

Supplemental Online Content

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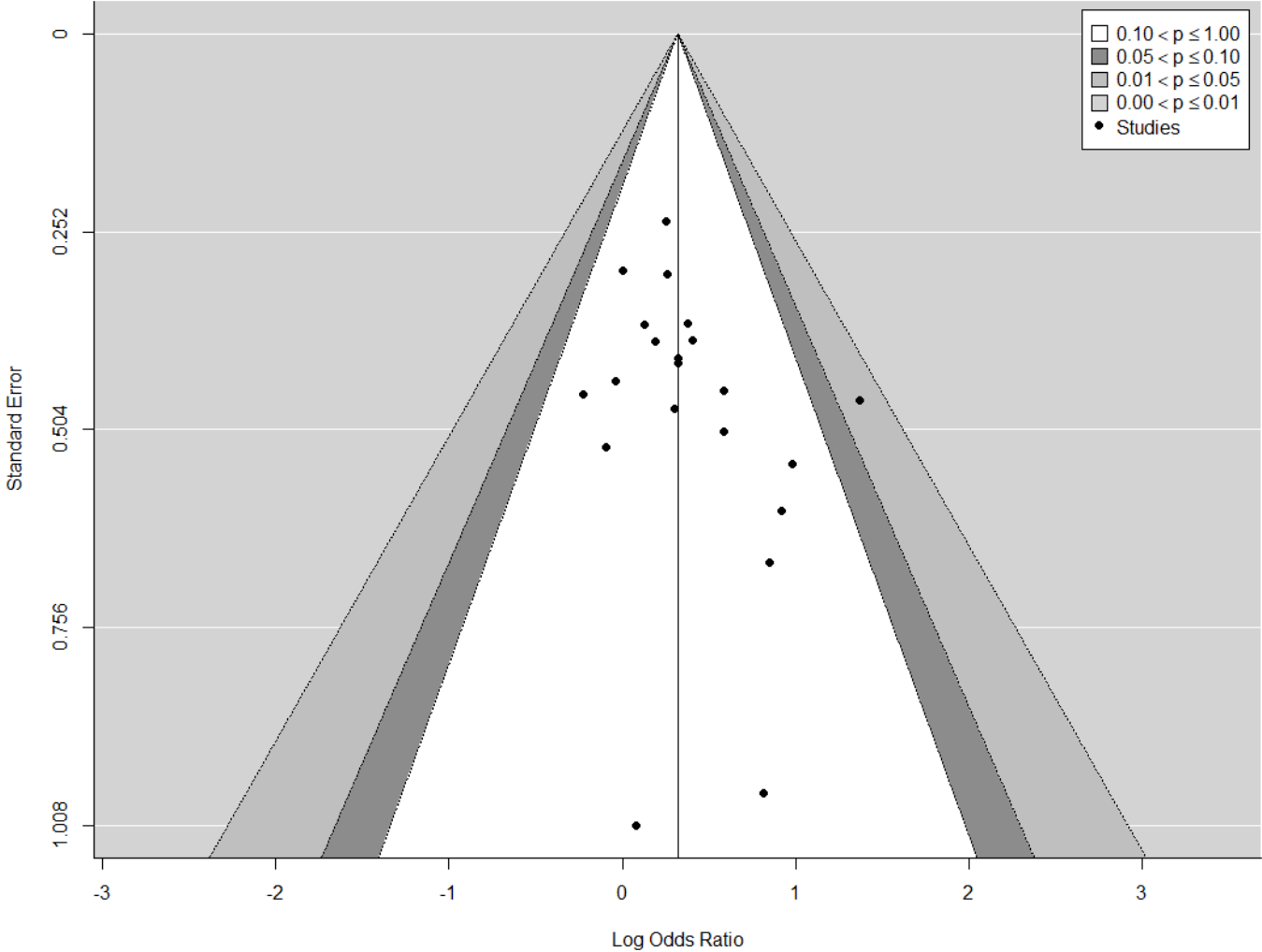
This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Newcastle–Ottawa quality assessment scale.

Author years	Selection	Comparability	Exposure	Quality score			
Reilev 2020	3	2	3	Good			
Fond 2020	4	2	2	Good			
Tzur-Bitan 2021	4	2	3	Good			
Lee SW 2020	4	2	2	Good			
Lee DY 2020	3	2	3	Good			
Jeon 2020	3	2	2	Good			
Poblador-Plou 2020	3	1	3	Good			
Yang 2020	4	2	3	Good			
Allen 2020	4	1	2	Good			
Baillargeon 2020	3	2	3	Good			
Egede 2020	4	2	2	Good			
Nemani 2021	4	2	3	Good			
Li 2020	3	2	3	Good			
Wang 2021	3	2	2	Good			

Good quality: 3 or 4 score in selection domain AND 1 or 2 in comparability domain AND 2 or 3 in outcome domain; Fair quality: 2 in selection domain AND 1 or 2 in comparability domain AND 2 or 3 in outcome/exposure domain; Poor quality: 0 or 1 in selection domain OR 0 in comparability domain OR 0 or 1 in outcome/exposure domain

eFigure 1. Funnel plot (adjusted odds ratios). The Egger’s test is non-significant ($p>0.05$).



eTable 2. Codes used for mental health disorders definitions according to the International Statistical Classification of Diseases and Related Health Problems.

References	Mental health disorders groups
Denmark	
Reilev	Mental health Disorders: F20* (schizophrenia) F25* (schizoaffective disorder) F30* F31* (bipolar disorders) Alcohol or drug misuse: F10–16, F18–19;
France	
Fond (1)	Schizophrenia: F20* (schizophrenia) F22* (delusional disorders) F25* (schizoaffective disorder)
Fond (2)	Bipolar Disorders: F30* F31*
Israel	
Tzur Bitan	Schizophrenia: F20*
South Korea	
Lee SW	<p>Non-affective psychotic disorders: F20* (schizophrenia) F22* (delusional disorders) F23* (acute and transient psychotic disorders) F24* (Shared psychotic disorder) F25* (schizoaffective disorder) F28 (other nonorganic psychotic disorders) F29 (unspecified nonorganic psychosis)</p> <p>Affective psychotic disorders: F30* F31* (bipolar disorders) +F32.3, F33.3 (Major depressive disorder with severe with psychotic feature)</p> <p>Mood disorders without psychotic symptoms: F32* (major depressive disorder) F33* (recurrent major depressive disorder) excluding F32.3 and F33.3, F34* (persistent mood disorder) F38* (other affective disorders) F39* (unspecified mood disorder)</p> <p>Anxiety-related and stress-related disorders: F40 (Phobic anxiety disorders) F41 (Other anxiety disorders) F42 (Obsessive-compulsive disorder) F43 (Reaction to severe stress, and adjustment disorders) F44 (Dissociative and conversion disorders) F45 (Somatoform disorders) F48 (Other nonpsychotic mental disorders)</p> <p>Alcohol or drug misuse: F10–16, F18–19;</p> <p>Eating disorders: F50</p> <p>Personality disorders: F60–63, F68–69</p>

References	Mental health disorders groups
Lee DY	No ICD codes (specific database codes) (Schizophrenia, Psychotic disorders, Bipolar disorders, Depressive disorder, Anxiety disorder, Panic disorder, Acute stress disorder, Insomnia, Dementia, Organic mental disorder, Psychoactive substance dependence, Psychoactive substance use disorder, Psychoactive substance-induced Organic mental disorder, Psychosomatic factor in physical condition)
Jeon	Mental health disorders: any F00–F99 code Schizophrenia F20* (schizophrenia) F22* (delusional disorders) F23* (acute and transient psychotic disorders) F25* (schizoaffective disorder) F28 (other nonorganic psychotic disorders) F29 (unspecified nonorganic psychosis) Mood disorders: F30* F31* (bipolar disorders) F33* (recurrent major depressive disorder), F34* (persistent mood disorder) F38* (other affective disorders) F39* (unspecified mood disorder)
Spain	
Poblador-plou	NA (Bipolar disorders, Depressive disorders, Anxiety disorders)
UK	
Yang	Mental health disorders: Schizophrenia spectrum disorder; F20* (schizophrenia) F22* (delusional disorders) F23* (acute and transient psychotic disorders) F25* (schizoaffective disorder) F28 (other nonorganic psychotic disorders) F29 (unspecified nonorganic psychosis) Depressive disorders: F32* (major depressive disorder) F33* (recurrent major depressive disorder), Anxiety-related and stress-related disorders: F40 (Phobic anxiety disorders) F41 (Other anxiety disorders) F43 (Reaction to severe stress, and adjustment disorders) Alcohol or drug misuse: F10–16, F18–19; Nicotine dependence: F17
US	
Allen	Alcohol or drug misuse: F10–16, F18–19;
Baillargeon	NA (Substance use disorder)
Egede.	Mental health disorders : Schizophrenia F20* (schizophrenia) F22* (delusional disorders) F23* (acute and transient psychotic disorders) F25* (schizoaffective disorder) F28 (other nonorganic psychotic disorders) F29 (unspecified nonorganic psychosis) Mood disorders (including bipolar disorders and depressive disorders) F32* (major depressive disorder) F33* (recurrent major depressive disorder), F34* (persistent mood disorder) F38* (other affective disorders) F39* (unspecified mood disorder) Alcohol or drug misuse: F10–16, F18–19;
Nemani	Schizophrenia spectrum disorder; F20* (schizophrenia) F22* (delusional disorders) F23* (acute and transient psychotic disorders) F25* (schizoaffective disorder) F28 (other nonorganic psychotic disorders) F29 (unspecified nonorganic psychosis)

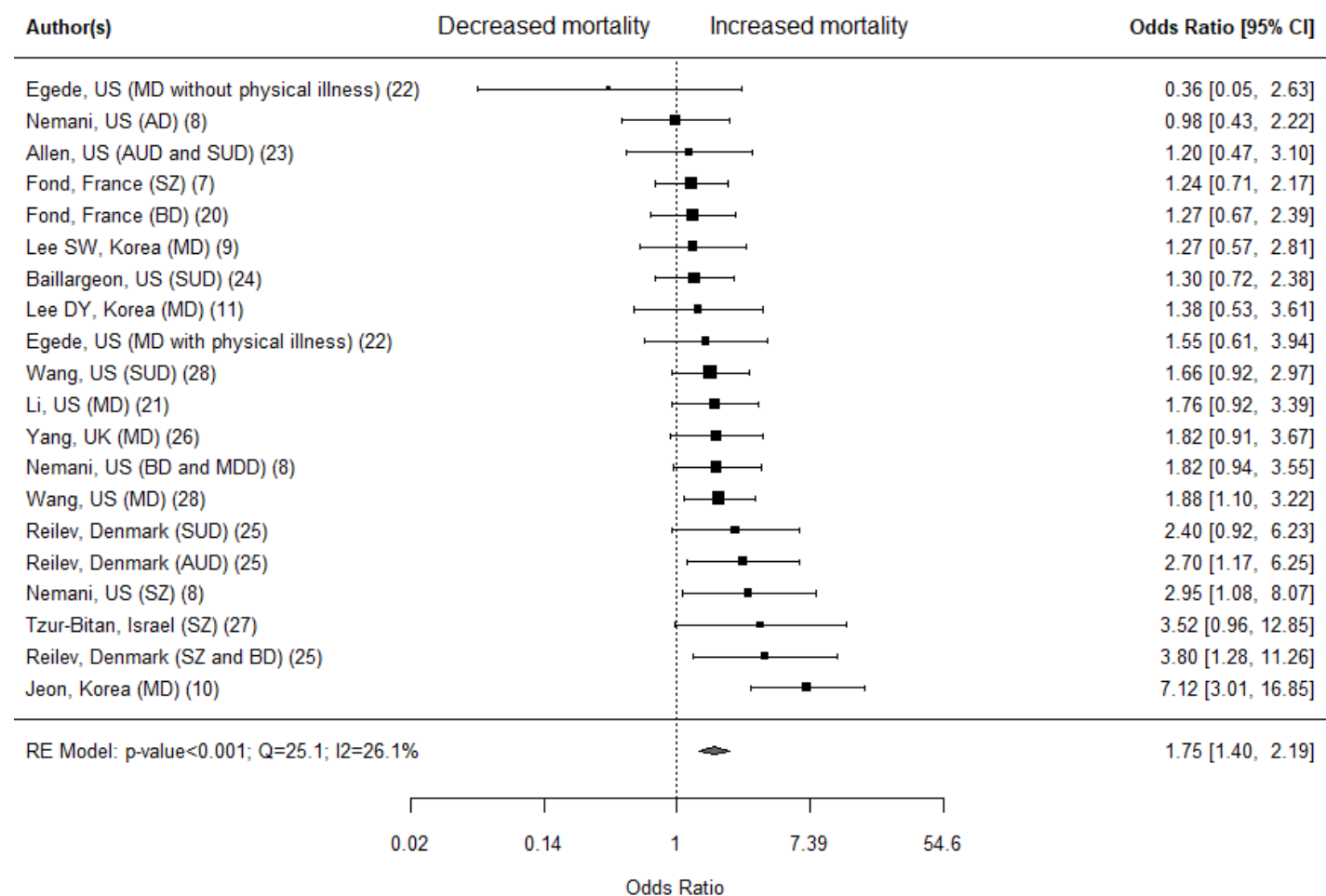
References	Mental health disorders groups
	Mood disorders (including bipolar disorders and depressive disorders) F32* (major depressive disorder) F33* (recurrent major depressive disorder), F34* (persistent mood disorder) F38* (other affective disorders) F39* (unspecified mood disorder) Anxiety disorders F40* (phobic anxiety disorders) F41* (other anxiety disorders)
Li	Mental disorders included F01 to 99 (mental and behavioral health), specific codes G30 to 32 (Alzheimer disease), and codes X60 to 63 (self-injury).
Wang	NA Mental disorder: schizophrenia, bipolar disorders, depressive disorders, attention deficit / hyperactivity disorder and alcohol and substance use disorder

NA: Not available.

eTable 3. Matching and adjustment factors.

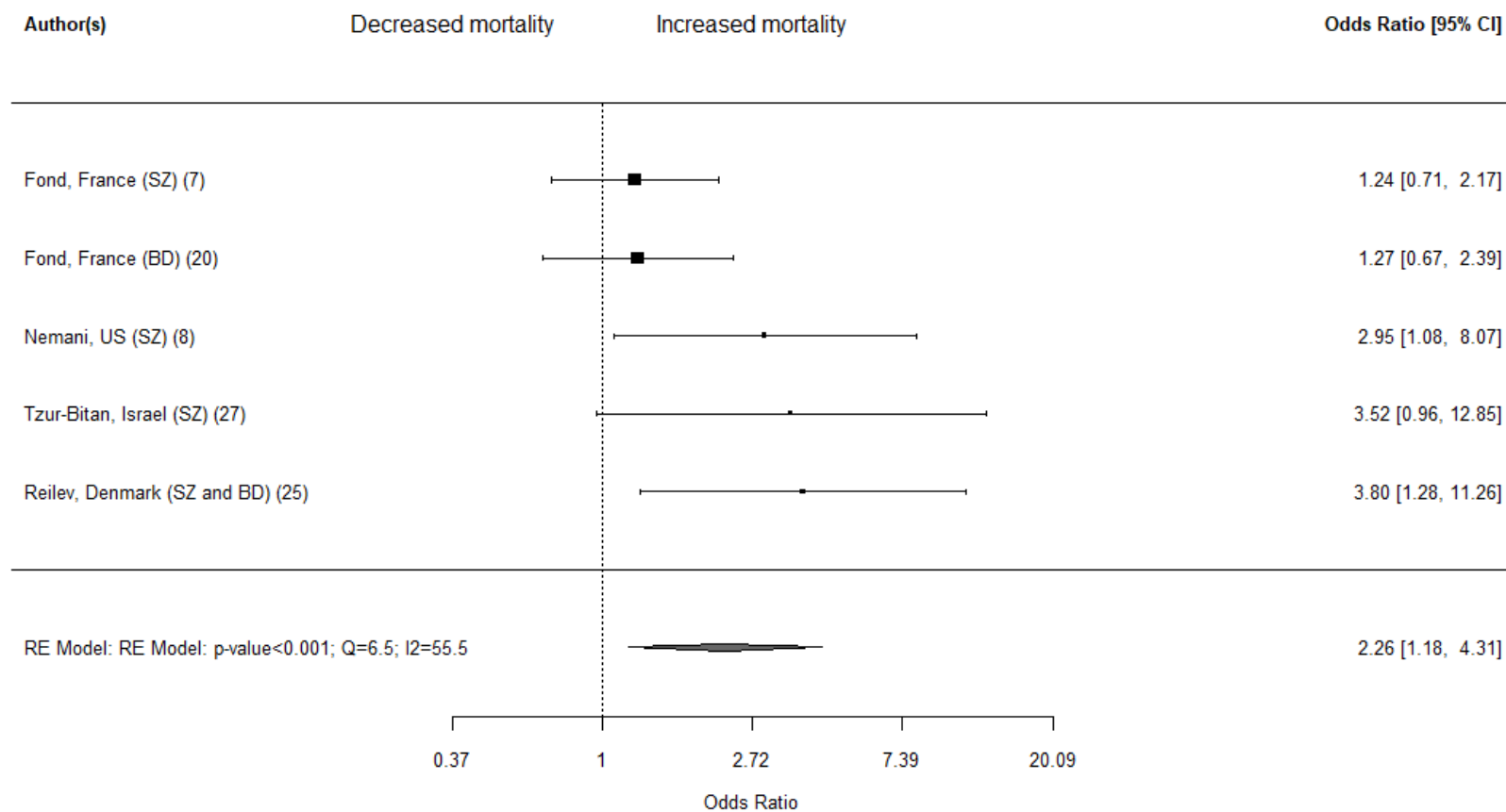
References	Matching and adjustment factors
Denmark	
Reilev	Age and sex
France	
Fond (1)	Age, sex, social deprivation, smoking addiction, overweight and obesity, Charlson comorbidity index., origin of the patient, hospital category, number of hospital stays for COVID-19 and geographical areas of hospitalization
Fond (2)	Age, sex, social deprivation, smoking addiction, overweight all Charlson comorbidities, obesity, origin of patients, ICU admission
Israel	
Tzur Bitan	No adjusted OR
South Korea	
Lee SW	age; sex; region of residence; history of diabetes, cardiovascular disease, cerebrovascular disease, chronic obstructive pulmonary disease, asthma, hypertension, or chronic kidney disease; and Charlson comorbidity index
Lee DY	No adjusted OR
Jeon	Matching: age (± 2 years), sex and Charlson comorbidity Index. Adjustment: type of insurance, a medical history of diabetes and pneumonia, and use of beta-blockers and anticonvulsants
Spain	
Poblador-plou	Age
UK	
Yang	No adjusted OR
US	
Allen	Age, sex, race and comorbidities;
Baillargeon	Age, sex, diabetes, obesity, hypertension, chronic obstructive pulmonary disease, ischemic heart disease and cerebrovascular disease
Egede.	Age, sex, race/ethnicity, county, payer, tobacco use and body mass index
Nemani	Age, sex, race/ethnicity, hypertension, diabetes, myocardial infarction, heart failure, chronic obstructive pulmonary disease, chronic kidney disease, smoking status and cancer
Li	Age, sex, other medical comorbidities and hospital location
Wang	No adjusted OR

eFigure 2. Forest plot of the association between mental health disorders and mortality (crude Odds Ratio).



BD: Bipolar disorders; MD: Mental health disorders; MDD: Major depressive disorders; AD: Anxiety disorders; SZ: Schizophrenia.

eFigure 3. Forest plot of the association between severe mental health disorders and mortality (crude Odds Ratio).



Severe mental health disorders were defined by schizophrenia spectrum disorder and/or bipolar disorders.
BD: Bipolar disorders; SZ: Schizophrenia.